Locations of Alfalfa Trials.

ALFALFA

Successful alfalfa production depends on selecting the best varieties for a particular farm. Varieties have been compared for yield in trial plots on Minnesota Agricultural Experiment Station fields: yearly at Rosemount, alternate years at Waseca/Lewiston/Plainview, Lamberton, Morris, Crookston, Stearns County/St. Cloud and Grand Rapids. The trials are conducted using recommended fertility and pest control practices to optimize yield and persistence.

Test results from new and previous seedings of varieties currently available in Minnesota are published as accumulated performance years averaged as a percent of check varieties. Test locations are representative of the risk of winter injury in specific regions of Minnesota: Rosemount and Waseca (replaced by Lewiston/Plainview since 1997) in southeastern, Lamberton in southwestern, Morris in west central, Stearns County in central, Crookston in northwestern and Grand Rapids in northeastern Minnesota (see Test Locations map). Varieties of alfalfa are tested for winter survival and forage quality at selected experiment stations of the universities of Minnesota and Wisconsin-Madison.

Early each fall alfalfa developers and marketers who have provided current contact addresses are asked to declare which varieties approved for seed certification will be marketed in Minnesota for the next seeding year. The varieties reported in those responses are listed on pages 22-26. Each variety is keyed to distributors' addresses and telephone numbers, page 26-27. Varieties seeded in past or present Minnesota yield trials are included in yield tables, pages 12-19; those with winter survival or forage quality performance data are listed on pages 20-21.

Winterhardiness

Severe winters make winterhardiness a primary consideration in variety selection for most areas of Minnesota. The greatest winterhardiness is needed in the west central and northwest Minnesota area (see Winter Injury Potential map, below, right). Because of the high frequency of severe winters in this area, only varieties with very good winter survival should be selected. The east central and southeast area also experience frequent severe winters. The southwest area seldom experiences severe winter injury because of dry soils, high soil potassium levels and neutral soil pH. The northeast area seldom experiences severe winter injury because of dependable snow cover.

Winter Survival

Winter survival of varieties is extremely difficult to determine because winter injury can occur as a result of many different weather events, which cause varied responses in alfalfa plants of differing ages. A standardized test, the North American Alfalfa Improvement Conference (NAAIC) Winter Survival Test, measures the survival of a variety after a severe winter. Tests conducted annually at four or five locations: Arlington, Lancaster and Marshfield, Wis.; and Rosemount and Morris, Minn., are the basis for the winter survival index (WSI), page 20.

The WSI was averaged over all test locations to provide a robust estimate of winter survival and is presented beside yield data in tables on pages 12-19. Varieties are rated from 'Superior' to 'Adequate' in winter survivability. Vernal, a traditional winterhardy variety is rated Superior. Varieties rated 'Adequate' in winter survivability are expected to be injured the most after a severe winter. Varieties tested to date rated above 'Adequate' are shown in yield tables on pages 12-17. Varieties not tested for winter survival are listed alphabetically in tables on pages 17-19. If a variety does not have a WSI, (company has not entered variety in Winter Survival trial) the Fall Dormancy index is the next best indicator of winterhardiness: (1 = very winterhardy; 2 = winterhardy; 3 and 4 = moderately winterhardy).

Fall Dormancy

Fall dormancy ratings are included on pages 22-25, with varieties listed alphabetically. Fall dormancy ratings describe the relative amount of fall growth of alfalfa varieties. Very fall dormant varieties have little fall growth and are slow to recover after cutting. Fall dormant varieties are adaptable to all areas of the state. Moderately fall dormant varieties produce good fall growth, are characterized by rapid recovery after harvest, and usually reach 1/10 bloom several days earlier than more dormant varieties. Although increased fall dormancy has traditionally been associated with greater

winter survival, the WSI is now considered a better predictor of winter survival.

Forage Yield

Alfalfa yield results are presented in two parts, a summary over all locations, plus southeastern sites, pages 12-15, and west, central and northeast sites, pages 16-19.

Yield results are expressed as a percent of the average check varieties identified in each table. Alfalfa yield of a given variety is best predicted after three seedings at test locations have been measured over 4 years of stand life (the 3 years after seeding). Test data from a single test site or region of the state is less robust than performance over several sites.

Variety yield performance is not as different the first two years after seeding as with older stands. Thus, to choose a variety for short-term stands, 1 to 2 years after seeding, use the all-location yield for 1+2 years after seeding. For long-term stands, choose varieties based on their performance over all locations 3 years after seeding. Varieties with less than three tests, pages 15 and 19, are not accurately characterized for yield performance.

Forage Quality

Alfalfa varieties differ in forage quality or feeding value. Alfalfa varieties have been evaluated for forage quality at Rosemount since 1991. An NAAIC Standardized Forage Quality Test has been performed at Arlington, Wis., and Rosemount, Minn., since 1995. Varieties in the seeding year are evaluated on one cut taken in late August. Production year evaluation (first year after seeding only) is done by analyzing each of three cuttings taken at late bud to one-tenth bloom stages of maturity.

Relative Feed Value index ranks varieties on their potential digestible dry matter intake. Milk per ton is estimated using a variety's crude protein and neutral detergent fiber concentrations to determine the amount of alfalfa needed to match the protein and energy needs of a 1,350-pound cow producing 60 pounds of milk per day with a diet including corn grain and minerals. Milk per acre quantifies the forage quality of an alfalfa variety as "tons per acre" multiplied by "milk per ton" (theoretical milk production per ton, calculated from protein and fiber values).

The LSD (Least Significant Difference), shown below the forage quality performance data, in page 21, is a statistical measure of variability within the trial. LSD is used to determine whether the differences between two numbers is due to genetic difference in the varieties. If the difference between two varieties equals or exceeds the LSD value for the column, you can conclude that the higher quality variety was superior in quality. If the difference is less, greater attention should be given to other traits which are also important in making your variety choices.

Disease Resistance

Alfalfa root and crown diseases occur in most Minnesota soils. The most important diseases are Bacterial wilt, Phytophthora root rot, Fusarium wilt, Anthracnose, Verticillium wilt, and Aphanomyces root rot. Plant resistance is available for all six diseases. The variety resistance ratings for each disease are presented on pages 22-25. While moderate resistance (MR) to a disease will provide protection to a variety under most conditions, either resistance (R) or high resistance (HR) is required for protection under severe disease conditions.

Winter injury can be the result of a combination of injury from cold temperatures and from root and crown diseases. Under some conditions disease resistances can compensate for lesser levels of cold tolerance. While all varieties can benefit from improved disease resistance, it is especially important for moderately fall-dormant varieties to have at least (R) levels of disease resistance to stay productive for more than 2 years after the seeding year under intensive management (four cuts/season) in the east central and southeast area of Minnesota.

Bacterial Wilt – This disease is prevalent in most areas of the state. Wilt-susceptible varieties are poor risks and should not be grown. They generally show losses in stand by the end of the second year after seeding. In some cases, where infection is severe, stand losses are often observed by the end of the first year after seeding. Stand reductions after winter are often due to a combination of wilt damage and winter injury.

Phytophthora Root Rot – This fungal disease is a major concern on poorly drained soils especially in the east central and southeast area of the state. It can cause stand losses of seedlings, and can contribute to lower productivity in older stands if the soil remains wet for a week or more.

Fusarium Wilt – The fungus that causes Fusarium wilt is present in most soils. It contributes to stand decline mainly in combination with other disease organisms. Therefore, resistance to Fusarium wilts in addition to resistance to both Bacterial wilt and Phytophthora root rot contributes to longer stand life.

Anthracnose – This fungus disease was first found in Minnesota in 1978 and has become more prevalent each year, but only in the east central and southeast area. It infects stems and crowns and kills susceptible plants. The disease is favored by hot, moist conditions, and will therefore be most frequently observed in southeast Minnesota.

Verticillium Wilt – This potentially destructive fungus disease was first found in several eastern Minnesota fields in 1981. It has usually been found in 2- or 3-year-old fields. Its spread in the state has been slow. Planting resistant varieties will help provide insurance for long-life stands. Varieties having at least a low level of resistance are indicated on pages 22-25.

Aphanomyces Root Rot – This disease is associated with very slowly drained soils and is easily confused with Phytophthora root rot. It stunts and kills seedlings as well as causing a chronic root disease in established plants. Few cases of this disease have been identified in Minnesota. Consider planting a variety with Aphanomyces resistance if Phytophthora root rot resistant varieties fail to persist.

Yields with Winter Survival Index at All and Southeastern sites[1] as % of checks for all seedings with 1 or more harvest years, 1983-1999.

Variety, By WSI Category Then by year 1+2	Winter Survival Index[2]	Average Yield Yor Years 1, 1+2, And 3 After Seeding Year							
		All Sites			Test Sites[3]	Production[4]	Rosemount, Waseca[5],		Plainview
		1	1+2	3	(Seedings)	Years 1-3	1	1+2	3
Checks, T/Ac 15%mc Hay		**5.99**	**5.71**	**5.01**	48	115	**6.51**	**6.35**	**5.91**
Superior Winter Survival									
ABT 205	1.6	102	102	106	7	18	107	104	108
Vernal-ck	1.9	100	100	101	51	115	100	101	102
Very Good Winter Survival									
ABT 350	2.8	115	115	121	5	6	114	115	121
XGrazer	2.8	119	114	113	1	3	–	–	–
Power Plant	2.5	108	111	–	1	2	108	111	–
Extend	2.9	111	110	101	3	8	108	109	103
5454	2.3	107	109	109	23	47	108	110	113
620	2.4	108	109	108	12	24	109	111	110
WinterGreen	2.5	108	109	139	5	8	112	116	–
Vitro	2.6	111	109	104	4	7	111	108	104
DK142	2.9	109	109	120	2	5	109	109	120
Defiant	2.3	106	107	107	7	15	106	109	111
Avalanche+Z	2.4	105	107	104	8	19	112	110	102
Notice	2.6	106	107	108	3	9	109	109	110
WinterGold	2.8	108	107	101	4	4	101	103	101
9429	2.8	108	107	101	4	4	102	104	101
Value Plus	2.3	106	106	102	1	3	106	106	102
WinterStar	2.4	107	106	105	8	14	110	108	105
Garst 645	2.8	107	106	118	13	30	107	107	107
Innovator+Z	2.3	103	105	105	5	12	108	109	105
WinterKing	2.5	106	105	107	7	9	107	106	107
DK127	2.6	105	105	108	13	30	110	108	110
ABT 405	2.6	103	105	111	3	9	108	108	115
Rainier	2.9	107	105	102	7	13	108	106	105
Exceed	2.8	108	104	102	3	8	106	104	104
DK140	2.9	106	104	–	10	10	108	104	–
MP2000	2.7	101	103	113	3	9	107	107	115
Rushmore	2.7	105	103	100	5	14	108	106	98
WL 232 HQ	2.8	106	103	–	6	6	106	103	–
Feast+EV	2.2	105	102	–	3	4	107	–	–
Sprint	2.6	101	102	101	3	3	101	102	101
Complete	2.7	101	102	109	3	7	111	110	110
LegenDairy 2.0	2.8	107	102	101	3	6	104	100	101
Forerunner	2.7	105	99	98	4	9	104	97	100
Spredor 3..ck	2.0	100	98	96	18	35	100	96	100
AmeriStand 201+Z	2.0	108	–	–	5	3	107	–	–
Rebound 4.2	2.4	108	–	–	5	2	–	–	–
DK134	2.5	104	–	–	7	4	102	–	–
Breakout	2.5	106	–	–	3	3	108	–	–
Emperor	2.6	101	–	–	2	2	101	–	–
DK124	2.6	105	–	–	9	6	108	–	–
6410	2.7	112	–	–	2	2	112	–	–
53V63	2.8	105	–	–	6	6	105	–	–
Geneva	2.8	108	–	–	6	4	109	–	–
MultiMist	2.7	–	–	–	0	0	–	–	–
6310	2.8	–	–	–	0	0	–	–	–

See footnotes, page 15.

Variety, By WSI Category Then by year 1+2	Winter Survival Index[2]	Average Yield Yor Years 1, 1+2, And 3 After Seeding Year							
		All Sites			Test Sites[3]	Production[4]	Rosemount, Waseca[5],		Plainview
		1	1+2	3	(Seedings)	Years 1-3	1	1+2	3
Checks, T/Ac 15%mc Hay		**5.99**	**5.71**	**5.01**	48	115	**6.51**	**6.35**	**5.91**
Good Winter Survival									
Magnum V	3.0	111	113	120	11	12	108	110	120
Excel	3.1	117	111	–	1	2	117	111	–
BigHorn	3.1	109	108	98	4	8	108	107	98
Aspen	3.2	112	108	98	3	8	106	105	101
Award	3.3	111	108	99	7	10	109	105	97
5312..	3.0	106	107	109	15	29	109	110	112
GH 767	3.0	107	106	104	4	9	107	106	104
Columbia 2000	3.1	109	106	98	6	10	109	108	103
Dart	3.2	107	106	111	13	34	109	108	108
Ace	3.1	101	105	106	4	7	99	104	106
GH 757	3.1	105	105	–	2	3	105	105	–
Viking 1	3.0	104	104	103	10	24	107	109	105
Baralfa 32 IQ	3.0	106	103	–	4	5	104	103	–
Lactator	3.1	105	103	102	3	6	105	103	102
Ciba 2888	3.2	105	103	106	4	10	105	103	106
DK141	3.5	105	103	–	10	10	106	104	–
8498	3.1	100	102	101	3	8	102	103	103
Lightning	3.3	96	100	106	3	9	108	103	107
Guardian	3.0	99	99	108	3	9	115	113	117
Fortress	3.8	94	97	90	8	24	105	102	84
53Q60	3.0	104	–	–	9	6	102	–	–
FQ 314	3.0	107	–	–	4	3	107	–	–

Yields with 3 or more seedings but no winter survival test at All and Southeastern sites[1] as % of checks for all seedings with 1 or more harvest years, 1983-1999.

Variety, Alphabetical Order	Winter Survival Index[2]	Average Yield Yor Years 1, 1+2, And 3 After Seeding Year							
		All Sites			Test Sites[3]	Production[4]	Rosemount, Waseca[5],		Plainview
		1	1+2	3	(Seedings)	Years 1-3	1	1+2	3
Checks, T/Ac 15%mc Hay		**5.99**	**5.71**	**5.01**	48	115	**6.51**	**6.35**	**5.91**
630		105	107	109	11	29	107	110	113
631	–	108	108	112	11	25	110	109	113
9326	–	112	113	100	6	8	114	114	100
2555 ML	–	107	107	110	6	15	109	108	108
329 (Max)	–	114	107	101	4	11	112	108	101
3452ML	–	101	104	107	4	10	106	104	106
A-295	–	108	107	95	3	8	108	107	95
A-395	–	107	107	108	5	9	107	107	108
Abound	–	108	107	118	4	3	108	107	118
Affinity+Z	–	105	106	102	3	8	102	105	103
Alfagraze	–	103	100	99	7	19	103	102	85
AlfaStar	–	109	105	110	3	7	109	108	117
Alpha 2001	–	99	102	107	4	9	103	101	–
AmeriGraze 401+Z	–	108	106	113	4	7	103	103	113
AmeriGuard 301	–	101	99	–	4	6	98	99	–
Apollo Supreme	–	100	101	105	7	20	106	107	108
Banquet	–	104	98	96	3	8	101	98	99
Blazer XL	–	108	103	101	3	8	106	101	–
Bounty	–	117	113	111	6	13	111	108	108
Crown II	–	105	106	116	6	15	117	112	–
Crystal	–	104	103	112	6	17	100	97	95

See footnotes, page 15.

Variety, Alphabetical Order	Winter Survival Index[2]	Average Yield Yor Years 1, 1+2, And 3 After Seeding Year							
		All Sites			Test Sites[3] (Seedings)	Production[4] Years 1-3	Rosemount, Waseca[5],		Plainview
		1	1+2	3			1	1+2	3
Checks, T/Ac 15%mc Hay		**5.99**	**5.71**	**5.01**	48	115	**6.51**	**6.35**	**5.91**
Demand	–	103	102	106	4	9	108	105	108
Depend+EV	–	106	104	115	4	9	106	104	100
Dividend	–	103	104	100	9	24	103	102	104
Dominator	–	107	106	108	4	9	109	108	108
Empire	–	102	101	102	6	12	104	100	96
Enhancer	–	104	106	115	3	9	109	110	113
Evolution	–	107	107	103	4	10	111	112	101
FQ 315	–	109	110	102	4	4	107	108	102
Gateway	–	113	109	–	3	4	112	109	–
GH 750	–	104	–	–	3	1	104	–	–
GH 755	–	117	111	91	4	9	112	109	91
GH 766	–	105	105	98	8	13	103	104	97
GH 787	–	108	107	103	6	14	109	106	106
Gold Plus	–	102	104	116	4	6	102	104	116
Good as Gold	–	113	110	117	7	18	116	109	99
GreenField	–	106	104	100	3	7	104	103	100
Imperial	–	109	109	108	5	9	109	109	108
Jade II	–	106	105	–	4	5	107	–	–
Laser	–	111	112	102	3	7	116	115	102
Legend Gold	–	110	108	98	4	3	110	108	98
Magnum III	–	109	110	114	9	25	111	110	110
Magnum III-Wet	–	111	111	99	6	12	111	111	99
Mainstay	–	106	104	101	4	8	106	104	101
Mariner	–	114	110	103	3	8	109	107	107
Milk RIver	–	118	111	–	6	5	104	–	–
Monument	–	103	108	108	6	13	109	107	–
Multi 5301	–	104	104	–	5	6	102	104	–
MultiQueen	–	117	111	–	3	5	104	–	–
Nemesis	–	102	104	106	4	9	104	105	106
Persist	–	108	112	–	7	11	108	112	–
Pointer	–	–	–	–	3	0	–	–	–
Proof	–	100	98	98	4	11	121	121	–
Quantum	–	114	110	99	4	9	109	107	99
Rhino	–	105	102	–	3	5	102	100	–
Rustler II	–	111	111	–	5	8	111	111	–
Spirit	–	105	113	–	4	5	108	114	–
Sterling	–	106	105	108	4	12	109	106	108
Surpass	–	110	111	107	8	21	113	113	108
Target II	–	112	109	96	4	10	117	110	84
Target II Plus	–	110	114	125	4	7	112	115	125
TMF 421	–	105	103	–	6	7	103	103	–
TMF Generation	–	102	102	105	5	13	109	107	111
TMF Multi-plier II	–	106	103	97	5	10	106	103	98
Voyager II	–	108	109	107	7	16	109	110	104
Webfoot MPR	–	107	103	–	5	9	105	102	–
WetLand	–	106	105	103	6	10	106	105	103
WL 252 HQ	–	101	105	113	5	10	110	110	113
WL 324	–	110	109	92	5	8	107	111	–
WL 325 HQ	–	109	108	96	7	12	109	107	97
Wrangler	–	104	105	106	5	14	105	108	114

See footnotes, page 15.

Yields with less than 3 seedings* but no winter survival test at All and Southeastern sites[1], yields as % of checks for all seedings with one or more harvest years, 1983-1999.

Variety, Alphabetical Order	Winter Survival Index[2]	Average Yield Yor Years 1, 1+2, And 3 After Seeding Year							
		All Sites			Test Sites[3] (Seedings)	Production[4] Years 1-3	Rosemount, Waseca[5],		Plainview
		1	1+2	3			1	1+2	3
Checks, T/Ac 15%mc Hay		**5.99**	**5.71**	**5.01**	48	115	**6.51**	**6.35**	**5.91**
53V08	–	102	–	–	2	2	–	–	–
ABT 400SCL	–	104	–	–	1	1	104	–	–
Abundance	–	109	111	110	2	5	109	111	110
AmeriGuard 302+Z	–	–	–	–	1	0	–	–	–
Ciba 2444	–	105	106	–	2	4	–	–	–
Clean Sweep 1000	–	103	102	–	1	2	103	102	–
Forecast 3000	–	101	–	–	2	2	–	–	–
Garst 645-II	–	–	–	–	1	0	–	–	–
GreenFeast	–	113	109	103	1	3	113	109	103
Hunter	–	–	–	–	1	0	–	–	–
LegenDairy	–	118	119	100	2	5	126	135	–
Magnum IV	–	110	108	100	2	5	110	108	100
NetYield 500	–	–	–	–	1	0	–	–	–
Pasture Plus	–	113	114	–	1	2	113	114	–
Platinum	–	108	–	–	2	1	108	–	–
Pristine	–	105	–	–	2	2	105	–	–
Radiant	–	108	110	–	1	2	108	110	–
Spur	–	107	–	–	2	2	107	–	–
Stampede	–	111	112	106	2	5	111	112	106
Synergy	–	104	103	–	1	2	104	103	–
UltraLac	–	–	–	–	1	0	–	–	–
WL 327	–	–	–	–	2	0	–	–	–
Yielder	–	102	107	107	2	4	102	107	107

*Varieties with less than 3 seedings CANNOT be reliably compared with those in previous tables with 3 or more seedings.

[1] Locations: Ro-Wa-SE: Rosemount-Waseca-SE (Lewiston/Plainview), Mo-Cr-ST: Morris-Crookston-Stearns Co.(~St.Cloud), Lamberton, Grand Rapids.

[2] Winter Survival Index from joint Minnesota-Wisconsin 1996-99 trials.

[3] Each seeding in any location counts as one "Test." Test data from experimental seed is retired as data from tests on commercial seed is sufficient to replace them.

[4] Total production years (after seed year) for any location with reliable data. Yr1+2 averages 2 production years. Seed years or production years that winter killed or developed unacceptably variable stands are excluded.

[5] Tests were discontinued at Waseca after 1994, replaced by a SE site near Plainview.

Yields with Winter Survival Index at West, Central and NE sites[1], yields as % of checks for all seedings with one or more harvest years, 1983-1999.

Variety, By WSI Category Then by year 1+2	WSI[2]	Average Yield For Years 1, 1+2, And 3 After Seeding Year										
		ALL Sites		Mo-Cr[3]-Stearns Co.			Lamberton			Grand Rapids		
		Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3
Checks, T/Ac 15%mc Hay		**5.71**	**5.01**	**5.88**	**5.37**	**5.04**	**6.23**	**5.90**	**3.99**	**4.10**	**3.92**	**3.74**
Superior Winter Survival												
ABT 205	1.6	102	106	108	109	110	80	87	101	97	103	102
Vernal-ck	1.9	100	101	99	99	100	100	100	100	101	101	100
Very Good Winter Survival												
ABT 350	2.8	115	121	117	–	–	–	–	–	–	–	–
XGrazer	2.8	114	113	119	114	113	–	–	–	–	–	–
Power Plant	2.5	111	–	–	–	–	–	–	–	–	–	–
Extend	2.9	110	101	–	–	–	–	–	–	115	111	98
5454	2.3	109	109	110	114	120	95	98	109	108	107	102
620	2.4	109	108	117	118	105	95	97	105	–	–	–
WinterGreen	2.5	109	139	–	–	–	–	–	–	103	102	139
Vitro	2.6	109	104	110	109	–	–	–	–	–	–	–
DK142	2.9	109	120	–	–	–	–	–	–	–	–	–
Defiant	2.3	107	107	112	109	101	90	98	108	–	–	–
Avalanche+Z	2.4	107	104	110	116	112	79	88	108	99	103	95
Notice	2.6	107	108	119	119	110	88	94	106	–	–	–
WinterGold	2.8	107	101	114	–	–	–	–	–	–	–	–
9429	2.8	107	101	115	–	–	–	–	–	–	–	–
Value Plus	2.3	106	102	–	–	–	–	–	–	–	–	–
WinterStar	2.4	106	105	108	106	–	100	–	–	104	–	–
Garst 645	2.8	106	118	112	111	119	102	101	128	–	–	–
Innovator+Z	2.3	105	105	112	–	–	79	87	106	–	–	–
WinterKing	2.5	105	107	107	–	–	108	–	–	101	–	–
DK127	2.6	105	108	104	106	114	91	91	106	108	110	95
ABT 405	2.6	105	111	115	115	112	86	92	106	–	–	–
Rainier	2.9	105	102	115	–	–	98	100	–	100	103	98
Exceed	2.8	104	102	–	–	–	–	–	–	112	103	100
DK140	2.9	104	–	112	111	–	96	97	–	101	–	–
MP2000	2.7	103	113	112	114	119	84	87	106	–	–	–
Rushmore	2.7	103	100	120	117	101	91	93	103	98	94	100
WL 232 HQ	2.8	103	–	109	–	–	101	–	–	–	–	–
Feast+EV	2.2	102	–	104	102	–	–	–	–	–	–	–
Sprint	2.6	102	101	–	–	–	–	–	–	–	–	–
Complete	2.7	102	109	–	–	–	83	91	107	–	–	–
LegenDairy 2.0	2.8	102	101	115	–	–	–	–	–	–	–	–
Forerunner	2.7	99	98	–	–	–	–	–	–	108	103	96
Spredor 3..ck	2.0	98	96	104	103	–	99	101	–	100	96	100
AmeriStand 201+Z	2.0	–	–	109	–	–	–	–	–	–	–	–
Rebound 4.2	2.4	–	–	111	–	–	105	–	–	–	–	–
DK134	2.5	–	–	110	–	–	–	–	–	100	–	–
Breakout	2.5	–	–	–	–	–	–	–	–	104	–	–
Emperor	2.6	–	–	–	–	–	–	–	–	–	–	–
DK124	2.6	–	–	104	–	–	103	–	–	104	–	–
6410	2.7	–	–	–	–	–	–	–	–	–	–	–
53V63	2.8	–	–	109	–	–	99	–	–	106	–	–
Geneva	2.8	–	–	104	–	–	111	–	–	–	–	–
MultiMist	2.7	–	–	–	–	–	–	–	–	–	–	–
ABT 227 LH	2.7	–	–	–	–	–	–	–	–	–	–	–

See footnotes, page 19.

Variety, Alphabetical Order	WSI [2]	Average Yield For Years 1, 1+2, And 3 After Seeding Year										
		ALL Sites		Mo-Cr [3]-Stearns Co.			Lamberton			Grand Rapids		
		Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3
Checks, T/Ac 15%mc Hay		**5.71**	**5.01**	**5.88**	**5.37**	**5.04**	**6.23**	**5.90**	**3.99**	**4.10**	**3.92**	**3.74**
6310	2.8	–	–	–	–	–	–	–	–	–	–	–
Magnum V	3.0	113	120	116	118	–	109	110	–	–	–	–
Excel	3.1	111	–	–	–	–	–	–	–	–	–	–
BigHorn	3.1	108	98	114	–	–	–	–	–	–	–	–
Aspen	3.2	108	98	–	–	–	–	–	–	125	116	94
Award	3.3	108	99	–	–	–	–	–	–	119	115	101
5312..	3.0	107	109	103	108	115	98	99	100	109	106	107
GH 767	3.0	106	104	–	–	–	–	–	–	–	–	–
Columbia 2000	3.1	106	98	106	–	–	104	–	–	116	108	94
Dart	3.2	106	111	103	104	113	106	104	112	117	109	108
Ace	3.1	105	106	107	–	–	–	–	–	–	–	–
GH 757	3.1	105	–	–	–	–	–	–	–	–	–	–
Viking 1	3.0	104	103	108	107	104	87	90	97	112	112	106
Baralfa 32 IQ	3.0	103	–	111	–	–	–	–	–	–	–	–
Lactator	3.1	103	102	–	–	–	–	–	–	–	–	–
Ciba 2888	3.2	103	106	–	–	–	–	–	–	–	–	–
DK141	3.5	103	–	109	104	–	104	103	–	96	–	–
8498	3.1	102	101	–	–	–	–	–	–	98	99	99
Lightning	3.3	100	106	111	121	109	70	77	102	–	–	–
Guardian	3.0	99	108	104	105	110	77	80	99	–	–	–
Fortress	3.8	97	90	63	80	98	99	106	89	108	103	98
53Q60	3.0	–	–	105	–	–	107	–	–	101	–	–
FQ 314	3.0	–	–	108	–	–	–	–	–	–	–	–

Yields with 3 or more seedings, but no winter survival test, at west, central and NE sites,[1] yields as % of checks for all seedings with one or more harvest years, 1983-1999.

Variety, Alphabetical Order	WSI [2]	Average Yield For Years 1, 1+2, And 3 After Seeding Year										
		ALL Sites		Mo-Cr [3]-Stearns Co.			Lamberton			Grand Rapids		
		Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3
Checks, T/Ac 15%mc Hay		**5.71**	**5.01**	**5.88**	**5.37**	**5.04**	**6.23**	**5.90**	**3.99**	**4.10**	**3.92**	**3.74**
630	–	107	109	100	102	100	105	107	107	102	99	112
631	–	108	112	115	119	114	94	97	110	–	–	–
9326	–	113	100	115	–	–	104	–	–	–	–	–
2555 ML	–	107	110	110	112	108	93	99	113	–	–	–
329 (Max)	–	107	101	–	–	–	–	–	–	119	106	101
3452ML	–	104	107	109	112	109	80	92	107	–	–	–
A-295	–	107	95	–	–	–	–	–	–	–	–	–
A-395	–	107	108	109	–	–	108	–	–	–	–	–
Abound	–	107	118	–	–	–	–	–	–	–	–	–
Affinity+Z	–	106	102	–	–	–	–	–	–	110	107	100
Alfagraze	–	100	99	102	97	106	103	101	117	106	103	94
AlfaStar	–	105	110	117	–	–	101	99	103	–	–	–
Alpha 2001	–	102	107	118	122	109	71	81	105	–	–	–
AmeriGraze 401+Z	–	106	113	124	–	–	–	–	–	–	–	–
AmeriGuard 301	–	99	–	98	–	–	103	100	–	–	–	–
Apollo Supreme	–	101	105	83	90	103	99	100	99	116	107	112
Banquet	–	98	96	–	–	–	–	–	–	110	98	94
Blazer XL	–	103	101	106	101	98	111	105	103	–	–	–
Bounty	–	113	111	124	118	114	–	–	–	–	–	–
Crown II	–	106	116	88	96	107	109	110	124	–	–	–
Crystal	–	103	112	104	104	112	118	117	144	–	–	–

See footnotes, page 19.

Variety, Alphabetical Order	WSI[2]	Average Yield For Years 1, 1+2, And 3 After Seeding Year										
		ALL Sites		Mo-Cr[3]-Stearns Co.			Lamberton			Grand Rapids		
		Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3
Checks, T/Ac 15%mc Hay		**5.71**	**5.01**	**5.88**	**5.37**	**5.04**	**6.23**	**5.90**	**3.99**	**4.10**	**3.92**	**3.74**
Demand	–	102	106	–	–	–	90	94	104	–	–	–
Depend+EV	–	104	115	–	–	–	–	–	–	107	103	130
Dividend	–	104	100	112	114	99	77	88	100	112	109	98
Dominator	–	106	108	–	–	–	101	99	–	–	–	–
Empire	–	101	102	110	111	110	80	87	99	103	–	–
Enhancer	–	106	115	–	–	–	93	96	117	–	–	–
Evolution	–	107	103	106	105	–	–	–	–	101	98	105
FQ 315	–	110	102	112	–	–	–	–	–	–	–	–
Gateway	–	109	–	115	–	–	–	–	–	–	–	–
GH 750	–	–	–	–	–	–	–	–	–	–	–	–
GH 755	–	111	91	130	117	–	–	–	–	–	–	–
GH 766	–	105	98	105	–	–	105	–	–	107	108	99
GH 787	–	107	103	–	–	–	–	–	–	104	109	98
Gold Plus	–	104	116	103	–	–	–	–	–	–	–	–
Good as Gold	–	110	117	109	113	117	113	104	135	108	108	115
GreenField	–	104	100	–	–	–	109	106	–	–	–	–
Imperial	–	109	108	109	–	–	–	–	–	–	–	–
Jade II	–	105	–	–	–	–	103	104	–	–	–	–
Laser	–	112	102	115	117	–	102	103	–	–	–	–
Legend Gold	–	108	98	–	–	–	–	–	–	–	–	–
Magnum III	–	110	114	100	106	103	111	116	132	114	104	108
Magnum III-Wet	–	111	99	110	111	–	–	–	–	–	–	–
Mainstay	–	104	101	–	–	–	–	–	–	–	–	–
Mariner	–	110	103	–	–	–	–	–	–	124	115	99
Milk RIver	–	111	–	133	122	–	117	108	–	–	–	–
Monument	–	108	108	105	117	117	80	92	105	111	113	103
Multi 5301	–	104	–	104	–	–	106	–	–	–	–	–
MultiQueen	–	111	–	142	127	–	105	102	–	–	–	–
Persist	–	112	–	109	116	–	107	105	–	–	–	–
Pointer	–	–	–	–	–	–	–	–	–	–	–	–
Proof	–	98	98	96	100	99	83	83	89	100	90	105
Quantum	–	110	99	127	118	–	–	–	–	–	–	–
Rhino	–	102	–	111	–	–	–	–	–	–	–	–
Rustler II	–	111	–	108	–	–	–	–	–	–	–	–
Spirit	–	113	–	104	–	–	103	–	–	–	–	–
Sterling	–	105	108	117	119	117	88	91	101	–	–	–
Surpass	–	111	107	112	104	105	95	108	105	111	108	110
Target II	–	109	96	108	111	106	–	–	–	105	105	97
Target II Plus	–	114	125	105	–	–	–	–	–	–	–	–
TMF 421	–	103	–	106	–	–	108	–	–	102	–	–
TMF Generation	–	102	105	112	108	105	91	93	99	–	–	–
TMF Multi-plier II	–	103	97	105	–	–	104	–	–	108	103	97
Voyager II	–	109	107	115	116	111	99	100	107	–	–	–
Webfoot MPR	–	103	–	119	108	–	103	100	–	–	–	–
WetLand	–	105	103	–	–	–	–	–	–	–	–	–
WL 252 HQ	–	105	113	88	97	–	112	107	–	–	–	–
WL 324	–	109	92	109	110	–	–	–	–	115	107	92
WL 325 HQ	–	108	96	106	106	–	–	–	–	115	113	96
Wrangler	–	105	106	100	106	103	97	98	106	110	107	100

See footnotes, page 19.

Yields with less than 3 seedings* but no winter survival test, at west, central and NE sites,[1] yields as % of checks for all seedings with one or more harvest years, 1983-1999.

Variety, Alphabetical Order	WSI[2]	Average Yield For Years 1, 1+2, And 3 After Seeding Year										
		ALL Sites		Mo-Cr[3]-Stearns Co.			Lamberton			Grand Rapids		
		Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3	Yr1	Yr1+2	Yr3
Checks, T/Ac 15%mc Hay		**5.71**	**5.01**	**5.88**	**5.37**	**5.04**	**6.23**	**5.90**	**3.99**	**4.10**	**3.92**	**3.74**
53V08	–	–	–	103	–	–	102	–	–	–	–	–
ABT 400SCL	–	–	–	–	–	–	–	–	–	–	–	–
Abundance	–	111	110	–	–	–	–	–	–	–	–	–
AmeriGuard 302+Z	–	–	–	–	–	–	–	–	–	–	–	–
Ciba 2444	–	106	–	104	104	–	106	107	–	–	–	–
Clean Sweep 1000	–	102	–	–	–	–	–	–	–	–	–	–
Forecast 3000	–	–	–	99	–	–	104	–	–	–	–	–
Garst 645-II	–	–	–	–	–	–	–	–	–	–	–	–
GreenFeast	–	109	103	–	–	–	–	–	–	–	–	–
Hunter	–	–	–	–	–	–	–	–	–	–	–	–
LegenDairy	–	119	100	–	–	–	–	–	–	109	104	100
Magnum IV	–	108	100	–	–	–	–	–	–	–	–	–
NetYield 500	–	–	–	–	–	–	–	–	–	–	–	–
Pasture Plus	–	114	–	–	–	–	–	–	–	–	–	–
Platinum	–	–	–	–	–	–	–	–	–	–	–	–
Pristine	–	–	–	–	–	–	–	–	–	–	–	–
Radiant	–	110	–	–	–	–	–	–	–	–	–	–
Spur	–	–	–	–	–	–	–	–	–	–	–	–
Stampede	–	112	106	–	–	–	–	–	–	–	–	–
Synergy	–	103	–	–	–	–	–	–	–	–	–	–
UltraLac	–	–	–	–	–	–	–	–	–	–	–	–
WL 327	–	–	–	–	–	–	–	–	–	–	–	–
Yielder	–	107	107	–	–	–	–	–	–	–	–	–

*Varieties with less than 3 seedings CANNOT be reliably compared with those in previous tables with 3 or more seedings.

[1] Locations: Ro-Wa-SE: Rosemount-Waseca-SE (Lewiston/Plainview), Mo-Cr-ST: = Morris-Crookston-Stearns Co.(~St.Cloud), Lamberton, Grand Rapids.

[2] Winter Survival Index from joint Minnesota-Wisconsin 1996-99 trials.

[3] Tests were discontinued at Crookston after 1995, replaced by a Stearns Co. site near St. Cloud.

Alfalfa Winter Survival test results for Wisconsin and Minnesota, planted in 1998 and rated April-May, 1999.

	Winter Survival Index: 1=Superior, 2=Very Good, 3=Good, 4=Adequate, 5=Low, 6=No Winter Survival				
Variety	Arlington, Wis.	Lancaster, Wis.	Rosemount, Minn.	Morris, Minn.	MEAN
Beaver (index 1 check)	1.1	1.0	1.0	1.0	1.0
Vernal (index 2 check)	1.8	1.8	2.0	2.1	1.9
Ameristand 201+Z	1.2	1.8	2.4	2.7	2.0
526 (index 2 check)	2.2	2.4	2.0	1.5	2.0
Rebound	2.3	2.3	2.8	2.3	2.4
WinterKing	1.7	2.9	2.6	2.6	2.5
Breakout	2.1	2.6	2.9	2.6	2.5
Emperor	2.5	2.8	2.7	2.5	2.6
DK 134	2.3	2.7	3.0	2.7	2.7
DK 140	2.3	2.9	2.8	2.9	2.7
6410	2.3	2.6	3.3	2.6	2.7
ABT 227 LH	2.4	2.5	3.1	3.0	2.7
53V63	2.1	3.4	3.0	2.7	2.8
DK 124	2.7	2.9	2.8	2.7	2.8
WinterGold	2.8	2.9	2.9	2.6	2.8
XGrazer	2.5	2.8	2.7	3.2	2.8
WL 232 HQ	2.9	2.5	3.0	2.9	2.8
6310	2.5	2.7	3.2	2.9	2.8
ABT 350	2.6	3.0	2.8	2.9	2.8
9429	2.6	3.0	3.0	2.8	2.8
Ranger (index 3 check)	2.6	3.0	3.1	3.0	2.9
Geneva	2.5	3.1	3.3	3.0	3.0
FQ 314	3.1	2.8	3.2	2.8	3.0
Magnum V	3.4	2.7	2.9	2.9	3.0
Baralfa 32 IQ	3.0	2.9	3.1	3.2	3.0
53Q60	2.6	3.0	3.0	3.5	3.0
Lactator	3.2	2.9	3.2	3.1	3.1
GH 757	3.3	3.5	3.1	2.6	3.1
Dart (index 3 check)	3.7	3.2	3.0	3.0	3.2
A9503	2.8	3.3	3.6	3.8	3.4
DK 141	3.5	3.5	3.6	3.4	3.5
Fortress (index 4 check)	3.4	4.0	4.0	4.0	3.9
G2852 (index 4 check)	4.2	4.1	4.0	4.0	4.1
Archer (index 5 check)	4.9	4.5	4.8	3.4	4.4
Southern Special (6 check)	5.1	5.1	5.1	5.2	5.1
MOAPA 69 (index 6 check)	5.9	5.9	5.9	6.0	5.9
CUF 101 (index 6 check)	6.0	6.0	6.1	6.0	6.0

Forage quality as Relative Feed Value and milk per acre of alfalfa varieties, % of checks.

Seed yrs 1991-97 Minn., 95-97 Wis. production yrs. 1992-98 Minn, 96-98 Wis.

Variety	RFV[2]	Milk/Acre	N
329 [Max]	104	110	2
53Q60	104	106	2
53V63	103	105	2
5454	102	105	1
630	107	109	1
8498	102	**118**	2
9326	104	113	2
ABT 205	102	110	2
Baralfa 32 IQ	103	100	2
Breakout	105	111	2
Ciba 2888	102	112	2
Dart	106	99	1
DK 124	106	111	2
DK 127	105	113	5
DK 134	104	105	2
DK 140	100	102	2
Dominator	105	98	1
Exceed	102	114	2
Extend	102	111	2
FQ 314	105	118	2
Garst 645	106	105	1
Geneva	104	110	2
GH 755	108	102	1
GH 757	99	104	2
GH 766	102	100	2
GH 767	105	109	4
GH 787	**105**	109	4
Good As Gold	105	102	1
Imperial	102	109	1
Innovator +Z	103	105	2
Legend Gold	104	117	2
LegenDairy	110	104	1
Lightning	102	111	2
Magnum III	102	105	1
Magnum III-Wet	**111**	102	1
Magnum IV	99	102	1
Rainier	103	110	2
Rushmore	98	105	1
Spirit	98	114	2
Sprint	105	112	2
Spur	103	109	1
Sterling	103	107	1
Target II Plus	105	**108**	1
Viking 1	106	103	1
WinterKing	103	107	2
WL 252 HQ	105	108	3
Vernal-ck	99	98	10
WL 322 HQ-check	104	104	8
Checks[5]	153	10,578	10
Test Mean	157	11,254	10
LSD .05	6	10	7
CV%[6]	4.1	6.7	7

Seed year 1998, production year, 1999.

	Minnesota		Wisconsin	
Variety	RFV[2]	Milk/Acre[3]	RFV	Milk/Acre[4]
53Q60	100	98	107	114
53V63	102	99	105	111
Baralfa 32 IQ	100	103	105	98
Breakout	103	**106**	107	116
DK 124	**102**	108	**109**	115
DK 134	105	109	103	102
DK 140	99	101	102	103
FQ 314	104	113	106	**123**
Geneva	**106**	**114**	102	107
GH 757	97	103	102	106
Spur	103	109	–	–
WinterKing	101	104	105	**110**
Vernal-ck	96	94	**101**	96
WL 322 HQ-ck	104	107	99	104
Checks[5]	137	8,202	182	10,182
Test Mean	139	8,580	189	11,071
LSD .05	5	9	8	13
CV%[6]	3.6	6.0	5.5	8.2

Seed year 1999, production year, 1999.

	Minnesota		Wisconsin	
Variety	RFV[2]	Milk/Acre[3]	RFV	Milk/Acre[4]
53Q60	108	113	99	98
9429	106	111	107	114
Colombia 2000	**101**	109	98	101
DK 124	**111**	116	102	107
DK 134	103	113	106	108
DK 140	109	114	**101**	102
Geneva	106	**120**	102	123
WinterGold	107	116	**110**	**126**
Cimarron VR-ck	97	101	–	–
Vernal-ck	97	92	101	102
WL 322 HQ-ck	106	**108**	99	97
Checks[5]	155	2,387	210	5,936
Test Mean	162	2,643	214	6,391
LSD .05	12	19	10	14
CV%[6]	8.2	11.7	6.9	9.0

Bold indicates the range: highest value, and lowest value not significantly different from highest.

[1] Varieties listed include joint Minnesota - Wisconsin quality trials (Seed Years 1995-1999), plus varieties from prior Minn. quality trials that are currently marketed in Minnesota.

[2] RFV = Relative Feed Value index (calculated from NDF and ADF)

[3] Milk per acre is calculated using season average quality and season average yield at Rosemount

[4] Milk per acre is calculated using season average quality and season average yield at Arlington, Wis.

[5] Checks: Vernal used until 1994; Vernal and WL322HQ for 1995-99 seed years

[6] CV = Coefficient of Variation. Smaller number indicates less variation between replicates.

Disease Resistance and Fall Dormancy of alfalfa varieties marketed in Minnesota.

Variety[1]	Developer or Marketer[2]	Seed Source[3]	Fall Dormancy[4]	Disease Resistance Ratings[5,6]					
				BW	VW	FW	An	PRR	Aph
2555ML	Garst Seed	30	2	HR	R	HR	HR	HR	R
329 (Max)	AgriBioTech	41	3	HR	HR	HR	HR	HR	R
3452ML	Garst Seed	30	3	HR	R	HR	HR	HR	R
5312	Pioneer Hi-Bred Int'l	55	3	HR	HR	HR	HR	HR	R
5347LH	Pioneer Hi-Bred Int'l	55	3	HR	R	HR	HR	HR	R
53Q60	Pioneer Hi-Bred Int'l	55	3	HR	R	R	HR	HR	R
53V08	Pioneer Hi-Bred Int'l	55	3	HR	HR	HR	HR	HR	LR
53V63	Pioneer Hi-Bred Int'l	55	3d	HR	HR	HR	HR	HR	HR
5454	Pioneer Hi-Bred Int'l	55	4	R	MR	HR	HR	HR	LR
620	Garst Seed	30, 36	2	HR	R	HR	HR	HR	R
630	Garst Seed	30	4	HR	MR	R	MR	R	–
631	Garst Seed	30	4	HR	R	HR	R	HR	MR
6310	Garst Seed	30	3	HR	R	HR	HR	HR	R
6410	Garst Seed	30	4	HR	HR	HR	HR	HR	HR
6420	Garst Seed	30	4	HR	R	HR	R	HR	R
8498	Mallard Seeds	45	3d	HR	R	HR	HR	HR	R
9326	LG Seeds	44	3	HR	R	HR	R	HR	R
9429	LG Seeds	44	4	HR	R	HR	HR	HR	HR
A-295	PGI / MBS	54	2	HR	R	HR	R	HR	R
A-395	PGI/MBS	54	3	HR	R	HR	HR	HR	R
Abound	Asgrow Seed	15	3	HR	HR	HR	HR	HR	HR
ABT 205	AgriBioTech	2, 3, 4	2	HR	R	HR	R	HR	R
ABT 227LH	AgriBioTech	2, 3, 4	2	HR	R	R	HR	HR	R
ABT 350	AgriBioTech	2, 3, 4	3	HR	HR	HR	HR	HR	HR
ABT 400 SCL	AgriBioTech	3, 4	4	HR	HR	HR	HR	HR	HR
ABT 405	AgriBioTech	2, 3, 4	4	HR	HR	HR	R	HR	R
Abundance	Brett-Young	18	4	HR	MR	HR	R	HR	R
Ace	W-L / UAP Seeds	0	4	HR	R	HR	HR	HR	R
Affinity+Z	America's Alfalfa	11,36,53,63,65,68	4	HR	HR	HR	HR	HR	R
Alpha 2001	Great Lakes Hybrids	35	4	HR	HR	HR	HR	HR	R
Alfagraze	America's Alfalfa	53	2	R	–	R	MR	LR	–
AlfaStar	Hoffman Seed / Sexauer	39, 60	4	HR	R	HR	HR	HR	R
AmeriGraze 401+Z	America's Alfalfa	11,36,53,63,65,68	4	HR	HR	HR	HR	HR	R
AmeriGuard 301	America's Alfalfa	0	3	HR	R	HR	HR	HR	R
AmeriGuard 302+Z	America's Alfalfa	11,36,53,63,65,68	3d	HR	HR	HR	HR	HR	HR
AmeriStand 201+Z	America's Alfalfa	11,36,53,63,65,68	2d	HR	HR	HR	R	HR	HR
Apollo Supreme	America's Alfalfa	53	4	HR	R	HR	HR	R	–
Aspen	Brown Seed Farms	19	4	HR	R	HR	HR	HR	R
Avalanche+Z	America's Alfalfa	11,36,53,63,65,68	2	HR	HR	HR	HR	HR	R
Award	Asgrow Seed	15	4	HR	HR	HR	HR	HR	R
Banquet	Tri-State Seed	28, 66	4	HR	HR	HR	HR	HR	R
Baralfa 32 IQ	Barenbrug USA	16	3	HR	R	HR	HR	HR	HR
Baralfa 54	Barenbrug USA	16	5	R	R	HR	HR	HR	–
BigHorn	Cargill Hybrid Seeds	21	4	HR	R	HR	HR	HR	HR
Blazer XL	Croplan Genetics	23	3	R	R	HR	HR	HR	R
Bountiful Plus	Tri-State Seed	66	3	HR	HR	HR	R	HR	–
Bounty	PGI/MBS	54	2	HR	R	HR	HR	HR	R
Breakout	Brunner Seed Farms	19	4	HR	R	HR	HR	HR	R
Ciba 2444	Novartis Seeds	0	3	HR	R	HR	HR	HR	R
Ciba 2888	Novartis Seeds	0	3	HR	HR	HR	HR	HR	R
Clean Sweep 1000	Agway / Allied Seed	1	3	HR	R	HR	HR	HR	R

See footnotes, page 25.

Variety[1]	Developer or Marketer[2]	Seed Source[3]	Fall Dormancy[4]	Disease Resistance Ratings[5,6]					
				BW	VW	FW	An	PRR	Aph
Columbia 2000	Allied Seed	1, 5, 10	4	R	R	R	LR	LR	S
Complete	Arrow / Fontanelle Hybrids	14, 28	3	HR	HR	HR	HR	HR	R
Crown II	Cargill Hybrid Seeds	21	3	HR	R	HR	HR	HR	–
Crystal	PGI / MBS	54	4	HR	R	HR	R	HR	LR
Cyclone	Tri-State Seed	66	3	HR	HR	HR	HR	HR	HR
Dart	AgriPro Seeds	7	3	HR	R	HR	R	HR	–
Defense+EV	AgriPro Seeds	7	3d	HR	HR	HR	HR	HR	HR
Defiant	AgriPro Seeds	7	2	HR	HR	HR	R	HR	R
Demand	AgriPro Seeds	7	3	HR	HR	HR	HR	HR	R
Depend+EV	AgriPro Seeds	7	4	HR	HR	HR	HR	HR	R
Dividend	Agway / Allied Seed	7	2	HR	R	HR	HR	HR	R
DK124	Monsanto	47	2d	HR	HR	HR	HR	HR	HR
DK127	Monsanto	0	3	HR	R	R	HR	HR	HR
DK131HG	Monsanto	47	3	HR	HR	HR	HR	HR	R
DK134	Monsanto	47	3	HR	HR	HR	HR	HR	HR
DK140	Monsanto	47	4	HR	R	HR	HR	HR	HR
DK141	Monsanto	0	4	HR	HR	HR	HR	HR	HR
DK142	Monsanto	47	4	HR	R	HR	R	HR	HR
Dominator	AgriPro Seeds	7	4	HR	R	HR	HR	HR	R
Emperor	ABI Alfalfa	0	4	HR	HR	HR	HR	HR	HR
Empire	Brunner Seed Farms	20	2	HR	R	HR	HR	HR	R
Enhancer	Rosen's / Bio-Plant Research	0	4	HR	R	HR	R	HR	MR
EverGreen	Novartis Seeds	52	3d	HR	R	HR	HR	HR	R
Evolution	Mycogen Seeds	48	2	HR	R	HR	HR	HR	R
Exceed	Specialty Seeds	62	3d	HR	R	HR	HR	HR	R
Excel	Bio-Plant Research	17	3d	HR	R	HR	R	HR	R
Extend	Spangler / Grassland West	61	4	HR	R	R	HR	HR	R
Feast+EV	AgriPro Seeds	7	3	HR	R	HR	HR	HR	R
Forecast 1000	Dairyland Seed	26	3	HR	R	HR	R	HR	R
Forecast 3000	Dairyland Seed	26	4	HR	R	HR	R	R	MR
Forerunner	Research Seed / Brown Seed	0	2	HR	HR	HR	HR	HR	R
Fortress	Novartis Seeds	52	4	R	R	R	–	HR	–
FQ 314	Cargill Hybrid Seeds	21	3	HR	HR	HR	HR	HR	HR
FQ 315	Cargill Hybrid Seeds	21	3	HR	R	HR	HR	HR	HR
FQ 302HR	Cargill Hybrid Seeds	21	3	HR	R	HR	HR	HR	R
Garst 645	Garst Seed	30	3	HR	R	R	HR	HR	MR
Garst 645 II	Garst Seed	30, 36	3d	HR	HR	HR	HR	HR	R
Gateway	Jung Seed Genetics	37	4	HR	R	HR	HR	HR	R
Geneva	Novartis Seeds	52	4	HR	HR	HR	HR	HR	HR
GH 750	Golden Harvest	32, 34	4	HR	HR	HR	HR	HR	HR
GH 755	Golden Harvest	32, 34	4	HR	R	HR	HR	HR	R
GH 757	Golden Harvest	33, 34	4	HR	HR	HR	HR	HR	HR
GH 766	Golden Harvest	32, 34	3	HR	R	HR	HR	HR	R
GH 767	Golden Harvest	33, 34	2	HR	R	HR	HR	HR	R
GH 787	Golden Harvest	33, 34	3	HR	R	R	HR	HR	R
Gold Plus	PGI / MBS	54, 64	4	HR	R	HR	HR	HR	R
Good as Gold	Johnston / Top Farm	54	4	HR	R	HR	R	HR	LR
GreenFeast	AgriBioTech	3	2d	HR	HR	HR	HR	HR	HR
GreenField	AgriBioTech	3	3	HR	R	HR	HR	HR	R
Guardian	AgVenture	9	3	HR	HR	HR	HR	HR	R
Hay Maker II	Mid-Atlantic / Kussmaul	40	4	HR	R	HR	HR	HR	R
Hunter	Ramy International	58	4	HR	R	HR	HR	HR	R

See footnotes, page 25.

Variety[1]	Developer or Marketer[2]	Seed Source[3]	Fall Dormancy[4]	Disease Resistance Ratings[5,6]					
				BW	VW	FW	An	PRR	Aph
Imperial	ABI / Top Farm Hybrids	64, 68	3	HR	R	HR	HR	HR	R
Innovator+Z	America's Alfalfa	11,36,53,63,68	3	HR	HR	HR	HR	HR	R
Interceptor	AgriPro Seeds	7	3	HR	R	HR	HR	HR	R
Iroquois	Cornell Univ.	5, 10	2	HR	S	MR	S	S	–
Jade II	NC+ Hybrids	49	4	HR	R	HR	R	HR	MR
Lactator	Elk Mound Seed	27	2	HR	HR	HR	HR	R	R
Laser	J-V / Patriot / Rainier	12	4	HR	R	HR	R	HR	MR
Legend Gold	Legend Seeds	42	3	HR	HR	HR	HR	HR	HR
LegenDairy	Croplan Genetics	23	2	HR	HR	HR	HR	HR	R
LegenDairy 2.0	Croplan Genetics	23	3	HR	R	HR	HR	HR	R
Lightning	Jung Seed Genetics	37	3	HR	R	HR	HR	HR	HR
Lightning II	Jung Seed Genetics	37	4d	HR	HR	HR	HR	HR	HR
Magnum III	Dairyland Seed	26	4	R	MR	R	MR	R	LR
Magnum III-Wet	Dairyland Seed	26	3	R	MR	R	MR	R	MR
Magnum IV	Dairyland Seed	26	4	HR	R	HR	R	HR	MR
Magnum V	Dairyland Seed	26	4d	HR	R	HR	R	HR	MR
Mainstay	AgVenture	9	3d	HR	R	HR	HR	HR	R
Mariner	Agway / Allied Seed	1, 58	2	R	MR	HR	MR	HR	MR
Maxi-Graze GT	Croplan Genetics	23	2d	HR	R	HR	R	HR	R
Maximum I	Fred Gutwein & Sons	29	3	HR	HR	HR	HR	HR	R
Milk River	R.J Hunt Seed	57	3	HR	R	HR	HR	HR	R
Monument	Geertson Seed Farm	31	3d	R	LR	R	–	MR	–
MP2000	Croplan Genetics	23	3	HR	R	HR	HR	HR	HR
Multi 5301	Geertson Seed Farm	31	4d	R	R	HR	HR	MR	–
MultiMist	Lemke Seeds	43	3	HR	R	HR	HR	HR	R
MultiQueen	Fred Gutwein & Sons	29	4	HR	R	HR	HR	HR	R
Nemesis	Renk Seed	59	3	R	HR	HR	HR	HR	HR
NetYield 500	NetSeeds	50	4d	HR	R	HR	R	HR	MR
Notice	Midwest Seed Genetics	46	3	HR	R	HR	HR	HR	R
Pasture Plus	PGI / MBS	54	3	HR	R	HR	R	HR	R
Persist	Kaltenberg Seed Farms	38	4	HR	R	HR	R	HR	MR
Platinum	Midwest Seed Genetics	46	4	HR	HR	HR	HR	HR	HR
Pointer	DahlCo Seeds	25	3	HR	R	HR	HR	HR	HR
PowerPlant	Crow's Hybrids	24	3	HR	HR	HR	R	HR	R
Pristine	Doebler's Hybrids	65	4	HR	R	HR	HR	HR	R
Proof	Mycogen Seeds	48	3	HR	R	HR	HR	HR	R
Quantum	Renk Seed	59	2	HR	HR	HR	HR	HR	R
Radiant	AMPAC Seed Co.	12	4d	HR	HR	HR	HR	HR	HR
Rainier	Novartis Seeds	52	3	HR	R	HR	HR	HR	HR
Rebound 4.2	Croplan Genetics	23	4d	HR	HR	HR	HR	HR	HR
Rhino	Geertson Seed Farm	31	3	HR	R	R	R	R	R
Rushmore	Novartis Seeds	52	4	HR	R	HR	HR	HR	HR
Rustler II	Andrews Seed	13	4	HR	HR	HR	HR	HR	R
Spirit	Fontanelle Hybrids	28, 54	3	HR	R	HR	R	HR	MR
Spredor 3	Novartis Seeds	52	1	HR	MR	HR	R	MR	S
Sprint	Specialty Seeds	62	3d	HR	R	HR	R	HR	HR
Spur	Wheatland Seed	1, 10	4	HR	R	HR	HR	HR	R
Stampede	Agway / Allied Seed	1	3	HR	R	R	–	HR	R
Sterling	Cargill Hybrid Seeds	21	2	HR	R	HR	HR	HR	R
Surpass	Andrews Seed	10, 13, 57	3	HR	R	HR	MR	R	–
Synergy	Crow's Hybrids	24	3	HR	R	HR	HR	HR	R
Target II	Bio-Plant Research	56	4	HR	R	HR	R	HR	S

See footnotes, page 25.

Variety[1]	Developer or Marketer[2]	Seed Source[3]	Fall Dormancy[4]	Disease Resistance Ratings[5,6]					
				BW	VW	FW	An	PRR	Aph
Target II Plus	Bio-Plant Research	56	3	HR	R	HR	R	HR	MR
Teton	S.Dakota Agr.Exp.Sta.	2, 5	1	LR	–	MR	S	LR	–
TMF 421	Mycogen Seeds	48	2	HR	HR	R	HR	HR	HR
TMF 4355LH	Mycogen Seeds	48	3	HR	R	HR	HR	HR	R
TMF Generation	Mycogen Seeds	48	4	HR	HR	HR	HR	HR	R
TMF Multi-plier II	Mycogen Seeds	48	3	HR	HR	HR	HR	HR	R
Trail Blazer 3.0	Croplan Genetics	23	3	HR	HR	HR	HR	HR	R
Travois	S.Dakota Agr.Exp.Sta.	2, 5	1	R	–	MR	S	S	–
UltraLac	Elk Mound Seed	27	2d	HR	HR	HR	HR	HR	HR
Value Plus	Brunner Seed Farms	19	4d	HR	HR	HR	HR	HR	HR
Vernal	USDA / Wisc.AES	2, 5, 10, 57	2	R	–	MR	–	–	–
Viking 1	Novartis Seeds	52	2	R	HR	HR	R	R	–
Vitro	North-Gro Seed	51	3	HR	HR	HR	HR	HR	R
Voyager II	Bio-Plant Research	72	4	HR	R	HR	R	HR	MR
Webfoot MPR	Great Lakes Hybrids	35	4	HR	HR	HR	HR	HR	R
WetLand	Bio-Plant Research	56, 72	3	R	MR	R	R	HR	MR
WinterGold	Renk Seed	59	4	HR	HR	HR	HR	R	HR
WinterGreen	Renk Seed	59	3	HR	HR	HR	HR	HR	R
WinterKing	Wensman Seed	69	3	HR	HR	HR	HR	HR	R
WinterStar	Wensman Seed	69	2	HR	HR	HR	HR	HR	R
WL 232 HQ	W-L Research	9, 71	2	HR	HR	HR	HR	HR	HR
WL 252 HQ	W-L Research	8, 68, 71	2	HR	R	HR	HR	HR	LR
WL 324	W-L Research	8, 68, 71	3	HR	R	HR	HR	HR	HR
WL 325 HQ	W-L Research	8, 68, 71	3	HR	R	HR	HR	HR	R
WL 326 GZ	W-L Research	8, 68, 71	4	HR	HR	HR	HR	HR	HR
WL 327	W-L Research	8, 9, 68, 71	4	HR	R	HR	HR	HR	HR
Wrangler	USDA / Nebr.AES	5, 10, 57, 70	2	R	LR	R	LR	HR	–
XGrazer	Cargill Hybrid Seeds	21	2	HR	HR	HR	HR	HR	R
Yielder	AgriPro Seeds	7	3	HR	HR	HR	R	HR	R

[1] Varieties includes those marketed in Minnesota for which disease resistance ratings were provided. Varieties which are not seeded in a recent Minnesota yield trial are excluded from yield tables, pages 12-19.

[2] Developers list generally follows Certified Alfalfa Seed Council (CASC) 1998/99 Edition; the 1999/00 Edition was not available at the *Varietal Trials* deadline.

[3] Seed source numbers reference Forage Seed Sources Key, pages 26-27.

[4] Fall dormancy and pest resistance ratings are as reported in CASC publication, or provided by a developer (shown as "d"), with dormancy based on fall growth in mid-October after cutting 1st week of September: 9=tallest (tend to be least winterhardy), 1=shortest.

[5] Diseases abbreviated as BW: Bacterial Wilt, VW: Verticillium Wilt, FW: Fusarium Wilt, An: Anthracnose, PRR: Phytopthora Root Rot, Aph: Aphanomyces Root Rot.

[6] CASC Resistance Rating (% resistant plants): HR=high resistance (51 +), R=resistant (31-50), MR=moderate resistance (16-30), LR=low resistance (6-15), and S=susceptible (0-5).

Alfalfa Planting Rate and Date

Bushel Weight, Pounds 60
Seeds/Pound.....199,000
Planting Rate, Pounds/Acre 220,000
Alone 11
With Grass..... 7
Planting Rate, Seeds Sq.Ft.
Alone 55
With Grass.....32
Planting Date .....Early Spring, Late Summer

FORAGE SEED SOURCES, Key number refers to Seed Source Column in preceding table.

0 No marketer for 2000
Variety is listed to update
previous report with 1999 production year data

*1 ABT Independent Seeds
PO Box 945, Angola, IN 46703
800-813-5025

*2 ABT Independent Seeds
PO Box 84, West Hwy 212, Watertown, SD 57201
605-886-5888

*3 ABT Independent Seeds
Box 346 Savage, MN 55436
800-328-5898

*4 ABT/La Crosse Seed Co.
PO Box 187,LaCrosse, WI 54601
800-658-9428

*5 Agassiz Seed & Supply
445 7th St. NW, West Fargo, ND 58078
701-282-8118

6 AgriBioTech, Inc
120 Corporate Park Dr., Henderson, NV 89012
702-566-2440

7 AgriPro Seeds, Inc.
2369 330th St., Slater , IA 50244
800-831-6630

7 AgriPro Seeds, Inc.
8610 Pomona, Amarillo, TX 79110
806-358-4807

8 AgVenture East
Rte 2, Box 58, Kasson, MN 55944
800-657-4890

9 AgVenture Central
513 Main St, Madison Lake, MN 56063
507-243-3263

9 AgVenture West
P.O.Box 184, Jeffers, MN 56145
507-628-4929

9 AgVenture West Central
37752 880 Ave., Olivia , MN 56277
320-523-2250

9 AgVenture, Inc
207 N 7th, Kentland, IN 47951
888-999-0859

*10 Albert Lea Seedhouse
P.O Box 127, Albert Lea, MN 56007
800-352-5247

11 America's Alfalfa
12351 W.96th Terrace
Ste.101, Lenexa, KS 66215
913-599-2240

11 America's Alfalfa
P.O.Box 404, Princeton, IL 61356
800-873-2532

12 AMPAC Seed Co.
403 Wooster Rd., Winona Lake, IN 46590
219-268-9549

13 Andrews Seed Co.
580 S. Oregon, Ontario, OR 97914
541-889-9109

14 Arrow Seed
PO Box 722, Broken Bow, NE 68822
308-872-6826

15 Asgrow Seed Company
2605 East Kiligore Rd., Kalamazoo, MI 49009
616-384-5500

16 Barenbrug Midwest
1506 West 32nd. St., Vinton, IA 52349
888-470-5569

16 Barenbrug USA
P.O. Box 239, Tangent, OR 97389
800-547-4101

17 Bio Plant Research
P.O. Box 320, Camp Point, IL 62320
800-593-7708

18 Brett-Young
Box 99 St. Norbert, Winnipeg, MB R3V1L5
204-261-7932

*19 Brown Seed Farms
P.O.Box 186, Prescott, WI 54021
715-262-4331

20 Brunner Seed
W3850 U.S. Hwy 10, Durand, WI 54736
715-672-5887

21 Cargill Hybrid Seeds
PO Box 5645 MS16, Minneapolis, MN 55440
612-742-6743

*22 CEBECO International Seeds Inc.
P.O. Box 229, Halsey, OR 97348
541-369-2251

*23 Croplan Genetics
PO Box 64406, MS7455, St. Paul, MN 55164-0406
651-634-8105

24 Crow's Hybrids
PO Box 306 Hwy 1 N., Milford, IL 60953
815-889-4151

25 Dahlco Seeds
14730 15th St, Cokato, Mn 55321
320-286-5982

26 Dairyland Seed Co.
PO Box 958, West Bend, WI 53095
800-236-0163

27 Elk Mound Seed
43253 360th Ave., Sauk Centre, MN 56378
320-352-2600

27 Elk Mound Seed
PO Box 187
308 Railroad Ave, Elk Mound, WI 54739
715-879-5556

28 Fontanelle Hybrids
10981 8th St, Fontanelle, NE 68044-2505
402-721-1410

29 Fred Gutwein & Sons
25691 West 6005, Francesville, IN 47946
800-457-2700

30 Garst Seed Co.
2369 330th St., Slater, IA 50244
800-831-6630

*31 Geertson Seed Farm
1665 Burroughs Rd, Adrian, OR 97901
541-339-3768

32 Golden Harvest
Box A, 100 J.C. Robinson Blvd.
Waterloo, NE 68069
402-779-2531

33 Golden Harvest Seeds
27525 135th Ave. North, Cordova, IL 61242
309-654-2234

33 Golden Harvest Seeds
251 West Main St., Wabasha, MN 55981
612-565-2945

34 Golden Harvest, Inc.
220 N. Eldorado Rd, Ste E,
Bloomington, IL 61704
800-610-7333

35 Great Lakes Hybrids
9915 W. M-21, Ovid, MI 48866
800-257-7333

35 Great Lakes Hybrids
RR. 6 Box 6600, Mankato, MN 56001
507-625-1103

36 Interstate Payco Seed Co.
PO Box 338, West Fargo, ND 58078
701-282-7338

*37 Jung Seed Genetics, Inc.
1229 NW 41st St, Rochester, MN 55901
507-288-1930

*37 Jung Seed Genetics, Inc.
341 South High St., Randolph, WI 5395
800-242-1855

38 Kaltenberg Seed Farms
PO Box 278, Waunakee, WI 53597
800-383-3276

39 KayStar Seeds
PO Box 947, Huron, SD 57350
605-352-8791

40 Kussmaul Seeds
9020 Hwy 18, Mt. Hope, WI 53816
608-988-4568

41 L & H Seed
4756 West Hwy 260, Connell, WA 99326
509-234-4443

42 Legend Seeds
PO Box 241, De Smet, SD 57231
605-854-3346

43 Lemke Seeds
10220 N. Granville Rd., Mequon, WI 53092
414-242-2647

44 LG Seeds
PO Box 216, 905 Dexter St., Prescott, WI 54021
800-637-2887

45 Mallard Seed
PO Box 637, Plainview, MN 55964
507-534-2300

46 Midwest Seed Genetics
PO Box 518, 23751 Hwy 30 E., Carroll, IA 51401
800-369-8218

47 Monsanto
3100 Sycamore Road., De Kalb, IL 60115
815-758-9323

48 Mycogen Seeds
1340 Corporate Center Curve
Eagan, MN 55121-1233
651-405-5973

49 NC+ Hybrids
Box 4408, Lincoln, NE 68504
402-467-2517

50 NetSeeds
9001 Hickman Rd.
Ste.320 Urbandale, IA 50322
515-331-0939

51 North-Gro Seeds
613 N. Randolph St., Cuba City, WI 53807
608-744-7333

52 Novartis Seeds
PO Box 959, MInneapolis, MN 55440
612-593-7286

*53 Olds Seed Co.
2901 Packers Ave., Madison, WI 53704
800-356-7333

54 PGI / MBS Inc.
225 West 1st St., Story City, IA 50248
800-247-3967

55 Pioneer Hi-Bred International, Inc.
130 Willmar Ave. SE, Willmar, MN 56201
612-235-7420

56 Producers Hybrids, Inc.
PO Box C, Battle Creek, NE 68715
888-675-3190

56 Producers Hybrids, Inc.
22899 696th Ave., Dassel, MN 55325
320-275-3693

*57 R.J. Hunt Seed Co.
13477 Co Rd 101, Wadena, MN 56482
218-631-4190

58 Ramy International Ltd.
1329 N. River Front Drive, Mankato, MN 56001
800-658-7269

59 Renk Seed Company
6800 Wilburn Rd., Sun Prairie, WI 53590
800-289-7365

60 Shepherd Seeds
RR 1 535 Middle Road, South Beloit, IL 61080
800-383-2676

61 Spangler Seeds
803 W. Racine St., Jefferson, WI 53549
414-674-4606

*62 Specialty Seeds
26787 Hillhaven Drive, Cold Spring, MN 56320
800-685-4521

63 Terning Seeds, Inc.
15365 60th St. SW, Cokato, MN 55321
320-286-2168

*64 Top Farm Hybrids
13506 U.S. Hwy 12 SW, Cokato, MN 55321
320-286-5516

*65 Trelay, Inc.
11623 Hwy 80 N, Livingston, WI 53554
800-421-0397

66 Tri-State Seed
28401 GoldenGate Rd., Sleepy Eye, MN 56085
800-203-8581

*67 Twin Cities Seeds
7265 Washington Ave South, Edina, MN 55439
800-545-8873

68 UAP Midwest
PO Box 55, Kasota, MN 56050
800-722-2274

69 Wensman Seed Co.
PO Box 190, Wadena, MN 56482
218-631-2954

*70 Werner Farm Seeds
3104 Millersburg Blvd., Dundas, MN 55019
507-645-7995

71 W-L Alfalfas
1077 Shawmut St. South, Shakopee, MN 55379
612-308-9273

71 W-L Research, Inc.
8701 W U.S. Hwy 14, Evansville, WI 53536
608-882-4100

72 Ziller Seed Co., Inc.
76374 380th St., Bird Island, MN 55310
320-365-3674

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* These sources are useful contacts for public alfalfas (2,5,70) and several other forages species, such as
Red clover (1,2,3,4,5,10,19,22,23,37,53,57,62,67,70)
Birdsfoot trefoil (3,4,5,10,22,23,53,57,65,67,70)
Kura clover (2,3,4,10,23,53,70)
Reed canarygrass (2,3,4,5,10,23,35,53,57,64,70)
Smooth bromegrass (2,3,5,10,23,53
Orchardgrass (2,3,4,5,10,22,23,37,53,57,64,70)
Timothy (2,3,4,5,19,22,23,53,57,64,65,67,)
Tall fescue (3,4,10,22,23,53,65,67,70).